



Appl. No. 10/506,487

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group
Art Unit: 1772

Attorney
Docket No.: 121036-0070

Applicants: Kazuhisa SENDA et al.

Invention: METAL- OR RESIN-INTEGRATED
GASKET

Serial No: 10/506,487

Filing Date: September 2, 2004

Examiner: Brent O'Hern

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} on December 17, 2007

} 
} Michael S. Gzybowski

BRIEF ON APPEAL

Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Further to Appellants' Notice of Appeal filed October 17, 2007 in connection with the above-identified application, Appellants resubmit the present Brief on Appeal.

REAL PARTY IN INTEREST

Appellants have assigned this application to NOK Corporation in an assignment which was executed by the inventors and recorded in the United States Patent and Trademark Office on

September 2, 2004 at Reel No. 016472 and Frame No. 0024.

RELATED APPEALS AND INTERFERENCES

There are no related cases involved in any appeal procedures or Interferences.

STATUS OF CLAIMS

Claims 1-15 are pending in this application. Claims 1-15 stand under Final Rejection, from which rejection of claims 1-15 this appeal is taken. There are not other claims in this application.

STATUS OF AMENDMENTS

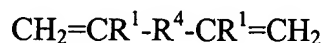
No Amendment(s) after Final was/were filed by appellants in this application.

SUMMARY OF CLAIMED SUBJECT MATTER

As set forth in independent claim 1, the present invention is directed to a metal- or resin-laminated gasket (See page 2, lines 12-15 and page 3, lines 7-9 of appellants' specification), which comprises a cured product layer of a composition comprising:

(A) an acrylic polymer having at least one alkenyl group capable of undergoing

hydrosilylation reaction obtained by copolymerization of an acrylic acid ester monomer and a compound as a second monomer represented by the general formula:



wherein R^1 is a hydrogen atom or a methyl group and R^4 is an alkylene group of $\text{C}_2\text{-C}_6$ (See page 5, lines 12-23; page 5, lines 24-25 and page 6, lines 13-24 of appellants' specification):

(B) a hydrosilyl group-containing compound (See page 8, line 22 through page 9, line 21 of appellants' specification); and

(C) a hydrosilylation catalyst (See page 10, line 8 through page 11, line 5) as essential components, and a metal plate or resin plate (See page 2, lines 16-23), the cured product layer being provided on at least one surface of the metal plate or the resin plate.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-3, 5, 6, 8, 9, 14 and 15 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Farnam in view of Kusakabe et al.

Whether claims 4 and 10 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Farnam in view of Kusakabe et al. and DeCato et al.

Whether claims 7 and 11-13 are properly rejected under 35 U.S.C. §103(a) as being unpatentable Farnam in view of Kusakabe et al., DeCato et al. and Kawamura.

ARGUMENT

Rejection of Claims 1-3, 5, 6, 8, 9, 14 and 15 under 35 U.S.C. §103(a) as being unpatentable over Farnam in view of Kusakabe et al.

The Examiner has relied upon Farnam as teaching:

... a gasket (Abstract, I. 2), which comprises a cured product layer (Abs., I. 17 "cure the coating") and a metal plate or resin plate (col. 3, I. 26 "polymeric material", a resin), the cured product layer being provided on at least one surface of the resin plate (col. 8, II. 46-48 "applied to top and bottom surfaces" and Abs., II. 4-5 and 17).

The Examiner concedes that:

Farnam (704) fails to expressly disclose a composition comprising an acrylic polymer having at least one alkenyl group.

Accordingly, the Examiner has relied upon Kusakabe et al as teaching:

... a composition comprising an acrylic polymer having at least one alkenyl group (See col. 11, II. 43-45, col. 5, I. 59 to col. 6, I. 33.) for the purpose of providing good depth curability without foaming for gasket applications (col. 14, II. 47-50 and 61-63).

In combining the teachings of Farnam and Kusakabe et al. the Examiner takes the position that:

...it would have been obvious to one having ordinary skill in the art at the time applicants' invention was made to substitute the composition of Farnam (704) with the well known acrylic polymer as described above in order to provide gaskets with good depth curability without foaming as taught by Kusakabe ('014).

On page 3 of the Office Action the Examiner states:

The phrase "**capable of undergoing hydrosilylation reaction by copolymerization**

of an acrylic acid ester monomer and a compound as a second monomer represented by the general formula:



wherein R1 is a hydrogen atom or a methyl group and R4 is an alkylene group of C2-C6

(B) a hydrosilyl group-containing compound; and

(C) a hydrosilylation catalyst as essential components" in claim 1, lines 3-10 and "wherein the second monomer reacts at a final stage of the polymerization reaction or after completion of the reaction of the acrylic acid ester monomer in the synthesis of acrylic polymers by living radical polymerization" in claim 15, II. 1-4 are process limitations in a product claims and hence not given any patentable weight since patentability of a product does not depend on its method of production (see MPEP§2173.05(p)).

MPEP § 2173.05(P) reads as follow:

2173.05(p) Claim Directed to Product-By- Process or Product and Process [R-5]

There are many situations where claims are permissively drafted to include a reference to more than one statutory class of invention.

I. PRODUCT-BY-PROCESS

A product-by-process claim, which is a product claim that defines the claimed product in terms of the process by which it is made, is proper. *In re Luck*, 476 F.2d 650, 177 USPQ 523 (CCPA 1973); *In re Pilkington*, 411 F.2d 1345, 162 USPQ 145 (CCPA 1969); *In re Steppan*, 394 F.2d 1013, 156 USPQ 143 (CCPA 1967). A claim to a device, apparatus, manufacture, or composition of matter may contain a reference to the process in which it is intended to be used without being objectionable under 35 U.S.C. 112, second paragraph, so long as it is clear that the claim is directed to the product and not the process.

An applicant may present claims of varying scope even if it is necessary to describe the claimed product in product-by-process terms. *Ex parte Pantzer*, 176 USPQ 141 (Bd. App. 1972).

II. PRODUCT AND PROCESS IN THE SAME CLAIM

A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under **35 U.S.C. 112**, second paragraph. ** > IPXL Holdings v. Amazon.com, Inc.*, 430 F.2d 1377, 1384, 77 USPQ2d 1140, 1145 (Fed. Cir. 2005); *< Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990) ** > (< claim directed to an automatic transmission workstand and the method * of using it * held ** ambiguous and properly rejected under 35 U.S.C. 112, second paragraph >) <.*

Such claims ** > may <* also be rejected under **35 U.S.C. 101** based on the theory that the claim is directed to neither a "process" nor a "machine," but rather embraces or overlaps two different statutory classes of invention set forth in **35 U.S.C. 101** which is drafted so as to set forth the statutory classes of invention in the alternative only. *Id.* at 1551.

As can be clearly seen, MPEP § 2173.05(P) **does not** support the Examiner's basis for failing to give proper patentable weight to the functional and structural limitations found in applicants' independent claims.

Note: MPEP § 2173.05(P) states that a "product-by-process claim, which is a product claim that defines the claimed product in terms of the process by which it is made, is proper," and that "a claim to a device, apparatus, manufacture, or composition of matter may contain a reference to the process in which it is intended to be used without being objectionable."

Neither of these situations applies to the present application.

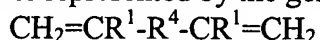
MPEP § 2173.05(P) further states that a "single claim which claims both an apparatus and the method steps of using the apparatus is indefinite."

This situation also does not apply to the present application.

Accordingly, the Examiner's basis (i.e., reliance upon MPEP § 2173.05(P)) for failing to give proper patentable weight to the functional and structural limitations found in applicants' independent claims, is clearly in error.

The actual phrases or recitations:

...capable of capable of undergoing hydrosilylation reaction obtained by copolymerization of an acrylic acid ester monomer and a compound as a second monomer represented by the general formula:



wherein R^1 is a hydrogen atom or a methyl group and R^4 is an alkylene group of $\text{C}_2\text{-C}_6$; (claim 1),

and:

wherein the second monomer reacts at a final stage of the polymerization reaction or after completion of the reaction of the acrylic acid ester monomer in the synthesis of acrylic polymers by living radical polymerization.

are functional or structural limitations that define, describe properties and characteristics and limit component (A) of the composition from which the metal- or resin-laminated gasket is made.

Note: these limitations/recitations clearly satisfy the requirements of 35 U.S.C. §112, first paragraph which reads:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

And the requirements of 35 U.S.C. §112, second paragraph which reads:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

It is submitted that there no legal basis that supports the Examiner's refusal to properly consider the functional and structural recitations/limitations which are proper elements of applicants' claimed invention.

It is submitted that proper consideration of these functional and structural recitations/limitations establishes patentability over the prior art or record.

In this regard it is noted that Kusakabe teaches $\text{CH}_2=\text{CR}^1-\text{R}^4-\text{CR}^1=\text{CH}_2$ in which: "R4 is -C(O)O-, or o-, m-, p-phenylene."

In contrast to Kusakabe, the compound having two alkenyl groups used in the present invention does not include -C(O)O-, or o-, m-, p-phenylene.

Further Kusakabe teaches $\text{CH}_2=\text{CR}^1-\text{R}^4-\text{CR}^1=\text{CH}_2$. However, at column 8, lines 43-64 Kusakabe teaches that this compound is used for "Conversion of the halogen atom into an alkenyl group-containing substituent [which] gives a (meth)acrylic polymer having alkenyl groups at both ends."

In contrast to Kusakabe, in the present invention the $\text{CH}_2=\text{CR}^1-\text{R}^4-\text{CR}^1=\text{CH}_2$ is used rather than the compound of formula (4) of Kusakabe.

A careful review of Kusakabe reveals that composition of Kusakabe is not at all similar to that recited in applicants' independent claim 1.

Therefore, substituting the composition of Kusakabe into Farnam does not result in applicants' claimed invention and certainly does not render applicants' claimed invention obvious.

On page 7 of the Final Office Action under the *ANSWERS TO APPLICANT'S ARGUMENTS* section the Examiner states that:

...it is noted that after close analysis of the claim that said polymer with R⁴ is not a product limitation but rather a process limitation and hence, as discussed above, not given any patentable weight.

The recitation of R⁴ being an alkylene group of C₂-C₆ is without doubt a product limitation.

It is unclear how one skilled in the art would not interpret recitation of R⁴ being an alkylene group of C₂-C₆ as being a limitation of applicants' claimed invention which defines the scope of the claims.

It is noted that in the Advisory Action of July 26, 2007 the Examiner has stated:

In response to Applicant's argument (p. 7, para. 1 to p. 10, para. 4 of Applicant's Paper filed 7/17/2007 that Applicant's product claims with process limitations within Applicant's amended claim #1 are proper and should be given patentable weight, it is noted that the Examiner does not disagree with Applicant's argument that process claims are proper, but rather the issue is whether or not the limitations are process limitations or not. Secondly, it is clear that the phrase "obtained by copolymerization" in claim 1, line 4 is a process limitation as a person having ordinary skill in the art would understand that copolymerization is a processing step by which two or more polymers are reacted. Furthermore, even if one were to give weight to said process limitations, said weight would be negated by Applicant's use of the optional terms "capable of" which makes said processing steps optional.

The Examiner concedes the process limitations in the Final rejection and in the Advisory Action. Appellants submit that the recited limitations which the Examiner deems process limitations should be given patentable weight inasmuch as they are elements or limitations of appellants'

claimed invention by which appellants' invention can be distinguished over the prior art of record and by which the public can assess appellants' invention.

Further, it is submitted that reciting that the acrylic polymer has at least one alkenyl group that is "capable of" undergoing hydrosilylation reaction, cannot be interpreted as an "optional processing step" as the Examiner infers.

A recitation of "capable of" is simply not the same and is not encompassed by "optional."

Perhaps a recitation of an "acrylic polymer having at least one alkenyl group" and nothing more could encompass an acrylic polymer has at least one alkenyl group that could or could not, i.e., "optionally" undergo hydrosilylation reaction.

However, reciting an acrylic polymer having at least one alkenyl group that is "capable of" undergoing hydrosilylation reaction requires that the alkenyl group that be "capable of" undergoing hydrosilylation reaction. This is not an "optional" property or characteristic.

Rejection of Claims 4 and 5
under 35 U.S.C. §103(a) as being unpatentable over Farnam in view of Kusakabe et al. and DeCato et al.

The Examiner has relied upon DeCato et al. as teaching the cured product layer's surface hardness can vary depending on the additives and as teaching a surface hardness of 45 or less.

The Examiner takes the position that:

...it would have been obvious...to modify the cured product of surface hardness of Farnam ('704) and Kusakabe ('014) since DeCato ('740) teaches that silicone compositions include a plasticizer when it is desirable for the specific surface hardness of the cured product layer depending on the desired surface hardness.

The Examiner's further reliance upon DeCato et al does not address or overcome the distinctions between the present invention and Kusakabe et al. noted above or that the fact that the combination of Farnam and Kusakabe et al. do not render the pending independent claims obvious.

The Examiner cites DeCato et al. at column 5, lines 46-51 as teaching "the cured product layer's surface hardness can vary depending upon the additives.

At column 5, lines 46-51 DeCato et al. teaches:

The silicone compositions of the present invention may also include a plasticizer, such as aliphatic liquid polymers and oils, when it is desirable for the composition or cured elastomer thereof to have physical properties and characteristics that are modified by inclusion of such a material. Other organic plasticizers that can be used in the present invention include, for example, petroleum derived organic oils. Moreover, other suitable organic plasticizers include, for example, alkyl phosphates, polyalkylene glycol, poly(propylene oxides), hydroxyethylated alkyl phenol, dialkyldithiophosphonate, poly(isobutylenes), poly(.alpha.-olefins) and mixtures thereof.

There is no reference to surface hardness in this cited portion of DeCato et al.

Moreover, DeCato et al. does not teach any motivation to provide a surface hardness of 45 or below and in fact provides working examples in which the range of surface hardness varies outside of appellants' claimed values.

Rejection of Claims 4 and 5
under 35 U.S.C. §103(a) as being unpatentable over Farnam in view of Kusakabe et al.,
DeCato et al. and Kawamura

The Examiner has relied upon Kawamura as teaching resins that have a softening point of 100°C or more for the purpose of providing a gasket to undergo a very slow cure for having acceptable storage stability.

The Examiner takes the position that:

...it would have been obvious....to provide a resin plate of Farnam ('704), Kusakabe ('014) and DeCato ('740) with a softening point of 100°C or more as taught by Kawamura ('110) in order to provide a gasket having acceptable storage stability.

The Examiner's further reliance upon Kawamura does not address or overcome the distinctions between the present invention and Kusakabe et al. noted above or that the fact that the combination of Farnam and Kusakabe et al. do not render the pending independent claims obvious.

As the Examiner concedes, Kawamura teaches a softening point of 5° to 200°C.

Accordingly, it is unclear how the Examiner has determined that Kawamura renders obvious a softening point of 100°C or more, inasmuch as Kawamura teaches a softening point of 5°C to 200°C

CONCLUSION

For the reasons advanced above, Appellants respectfully contend that the rejection of claims 1-3, 5, 6, 8, 9, 14 and 15 as being unpatentable over Farnam in view of Kusakabe et al. under 35 U.S.C. §103(a) is improper because the examiner has not met the burden of establishing a prima facie case of obviousness of appellants' claimed invention.


Moreover, for the reasons advanced above, Appellants respectfully contend that the rejection of claims 4 and 10 as being unpatentable over Farnam in view of Kusakabe et al. and DeCato et al. under 35 U.S.C. §103(a) is improper because the examiner has not met the burden of establishing a prima facie case of obviousness of appellants' claimed invention.

Moreover, for the reasons advanced above, Appellants respectfully contend that the rejection of claims 7 and 11-13 as being unpatentable over Farnam in view of Kusakabe et al., DeCato et al. and Kawamura under 35 U.S.C. §103(a) is improper because the examiner has not met the burden of establishing a prima facie case of obviousness of appellants' claimed invention.

Reversal of the rejections on appeal is respectfully requested.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,



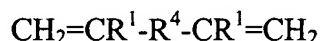
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CLAIMS APPENDIX

Claim 1 A metal- or resin-laminated gasket, which comprises a cured product layer of a composition comprising:

(A) an acrylic polymer having at least one alkenyl group capable of undergoing hydrosilylation reaction obtained by copolymerization of an acrylic acid ester monomer and a compound as a second monomer represented by the general formula:



wherein R^1 is a hydrogen atom or a methyl group and R^4 is an alkylene group of $\text{C}_2\text{-C}_6$;

(B) a hydrosilyl group-containing compound; and

(C) a hydrosilylation catalyst as essential components, and a metal plate or resin plate, the cured product layer being provided on at least one surface of the metal plate or the resin plate.

Claim 2 A metal- or resin-laminated gasket according to claim 1, wherein the component (A) of the composition is a liquid acrylic polymer having a number average molecular weight M_n of 500 or more and a molecular weight distribution (M_w/M_n) of 1.8 or less.

Claim 3 A metal- or resin-laminated gasket according to claim 1, wherein the cured product layer has a film thickness of 1-500 μm .

Claim 4 A metal- or resin-laminated according to claim 1, wherein the cured product layer has a surface hardness (Duro hardness A) of 45 or less.

Claim 5 A metal- or resin-laminated gasket according to claim 1, wherein the composition is directly applied to an adhesive-coated metal plate or resin plate and cured.

Claim 6 A metal- or resin-laminated gasket according to claim 1, which comprises at least one of an automobile engine cylinder head gasket, an engine oil pan gasket and an engine intake-exhaust manifold gasket.

Claim 7 A metal- or resin-laminated gasket according to claim 1, wherein the cured product is provided on a resin plate that has a softening point of 100°C or more.

Claim 8 A metal- or resin-laminated gasket according to claim 2, which comprises at least one of an automobile engine cylinder head gasket, an engine oil pan gasket and an engine intake-exhaust manifold gasket.

Claim 9 A metal- or resin-laminated gasket according to claim 3, which comprises at least one of an automobile engine cylinder head gasket, an engine oil pan gasket and an engine intake-exhaust manifold gasket.

Claim 10 A metal- or resin-laminated gasket according to claim 4, which comprises at least one of an automobile engine cylinder head gasket, an engine oil pan gasket and an engine intake-exhaust manifold gasket.

Claim 11 A metal- or resin-laminated gasket according to claim 2, wherein the cured product is provided on a resin plate that has a softening point of 100°C or more.

Claim 12 A metal- or resin-laminated gasket according to claim 3, wherein the cured product is provided on a resin plate that has a softening point of 100°C or more.

Claim 13 A metal- or resin-laminated gasket according to claim 4, wherein the cured product is provided on a resin plate that has a softening point of 100°C or more.

Claim 14 A metal- or resin-laminated gasket according to claim 1, wherein the second monomer is one of 1,5-hexadiene, 1,7-octadiene and 1,9-decadiene.

Claim 15 A metal- or resin-laminated gasket according to claim 1, wherein the second monomer reacts at a final stage of the polymerization reaction or after completion of the reaction of the acrylic acid ester monomer in the synthesis of acrylic polymers by living radical polymerization.

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EVIDENCE APPENDIX

None

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RELATED PROCEEDINGS APPENDIX

None